

PMC-281

High-definition Real-time MPEG4 Mezzanine

- ◆ Dual-channel high-resolution MPEG4 Part 10/H.264 compression and decompression of video up to a resolution of 1920x1080
- ◆ Single channel of 1080p60 encode or decode, or
- ◆ Two independent channels, each encoding or decoding at resolutions up to 1080p30/1080i60
- ◆ Incoming video is routed directly to the output to provide active loop-through
- ◆ Available as a PMC module offering easy integration onto many single board computers (SBCs) and carriers
- ◆ Low power design for deployment into harsh environments in a wide range of defense and aerospace applications
- ◆ CVBS, DVI and RGB input and output as standard; consult design center for other input/output types
- ◆ Programmable compression ratios and downscaling
- ◆ Fully integrated into the Sentric2 and VDS product families for video record, replay and distribution

Overview

The PMC-281 provides real-time MPEG4 Part 10/H.264 compression of video channels up to a resolutions of 1920x1080 pixels. It is ideal for video distribution and recording applications, where high-compression ratios allow multiple channels of high-definition video to be stored on disks and solid-state media and carried on digital networks.

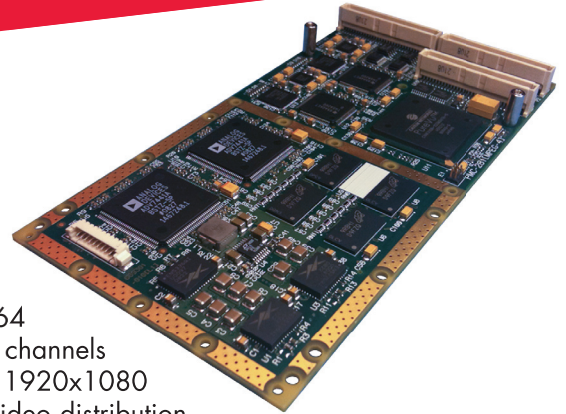
As a PMC-format mezzanine card, the PMC-281 brings high-performance video compression to a wide variety of system architectures including VPX, VME, CompactPCI (cPCI) and PCI Express® (PCIe).

The PMC-281 uses an ASIC for low power consumption making it ideal for deployment in harsh environments, in platforms as diverse as naval, land vehicle, fast jet, helicopters and UAV.

Each of the two channels supported by the PMC-281 can be independently configured for input (compression) or output (decompression). Each input and output can be configured for single-link DVI, RGB or CVBS.

The loop-through capability is especially useful in recording applications: the PMC-281 can be inserted into the video path so that during compression input video is routed both to the video decoder and to the output.

MPEG4 Part 10/H.264 compression is widely used in commercial and defense applications and users can choose from a wide variety of software decoders as an alternative to the hardware-accelerated decoding of the PMC-281.



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Typical Applications

Many applications have requirements for the distribution or storage of video. Until now, these applications have been challenging because of the combined need for high-compression and high-quality.

MPEG-4 is a very popular compression algorithm with adoption in a wide range of application spaces. Compression allows standard Gigabit Ethernet networks to distribute high-definition video between video sources (such as cameras, sensors and computer graphics cards) and video destinations (such as recorders, image processing units and displays).

For these reasons the PMC-281 is an excellent solution for applications such as:

- ◆ Recording the output from surveillance cameras and situational awareness cameras for long durations at high-resolution
- ◆ Recording radar screens and tactical displays for later replay and mission analysis or forensic investigation
- ◆ Video distribution over an Ethernet network on a naval, land or airborne platform to send the output from a sensor to multiple crew stations

Specifications

Video Inputs

- ◆ Two video inputs; each can be:
 - Digital single-link DVI
 - Analog RGB (either separate H/V syncs or sync-on-green, EIA-343 levels)
 - CVBS (PAL/NTSC)
- ◆ HDTV and VESA resolutions up to 1920x1080
- ◆ Loop-through so that incoming video is both compressed and routed directly to the equivalent output

Video Outputs

- ◆ Two video outputs; each can be:
 - Digital single-link DVI
 - Analog RGB (either separate H/V syncs or sync-on-green, EIA-343 levels)
 - CVBS (PAL/NTSC)
- ◆ HDTV and VESA resolutions up to 1920x1080

Video Compression

- ◆ H.264 constrained baseline profile (CBP) up to L4.2 (MPEG4 Part 10/AVC)
- ◆ 4:2:2 YUV video coding (downsampled to 4:2:0)

Performance

- ◆ One channel of 1080p60, or
- ◆ Two channels of video up to and including 1080p30 and 1080i60

Software Support

- ◆ Software support for Windows® and Wind River® GPP Linux® on x86 hosts
- ◆ Software support for Wind River® GPP Linux and Wind River® VxWorks® on PowerPC™ hosts
- ◆ For support for other platforms please contact the design center
- ◆ Fully integrated into Curtiss-Wright Controls' Video Distribution System (VDS) and Sentric 2 digital recording solution

Environmental

- ◆ Available in the following Curtiss-Wright Controls environmental grades:
 - Air-cooled Level 0
 - Operating temperature 0°C to +50°C
 - Storage temperature -40°C to +85°C
 - Conduction-cooled Level 200
 - Operating temperature -40°C to +85°C
 - Storage temperature -55°C to +125°C
- ◆ RTMs and PCI carrier assemblies are Level 0 only
- ◆ For further details please see the Curtiss-Wright Controls Ruggedization Table at <http://www.cwembedded.com/0/0/208.html>

Figure 1: PMC-281 Functional Block Diagram

